

Amendment Under 37 C.F.R. § 1.111
Serial No.: 09/744,801
Sughrue Ref: Q62916

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-25: Cancelled.

Claim 26 (currently amended): A carbon baking furnace for carbon anode blocks
comprising:

a refractory lined kiln defining a baking path, through which plural carbon anode blocks are displaced as they are baked,

a receiving zone adjacent a first end of the baking path in which wherein green carbon articles anode blocks are substantially continuously ~~loaded~~ placed into the kiln and ~~packed in a~~ asaid first end of the baking path,

a supply of sacrificial medium for packing said green carbon anode blocks in said
sacrificial medium, wherein prior to the packed carbon articles are anode blocks being
substantially continuously displaced through said baking path to form baked carbon
articles anodes, and wherein

a discharge zone adjacent a second end of the baking path in which said baked carbon articles-anodes are substantially continuously discharged from the kiln.

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Claim 27 (previously presented): A carbon baking furnace according to claim 26 wherein said refractory lined kiln comprises a plurality of heating zones.

Claim 28 (currently amended): A carbon baking furnace according to claim 27 wherein said refractory lined kiln comprises a first heating zone for heating the green carbon ~~articles~~ anode blocks to remove volatile organic compounds and a high temperature heating zone for baking the carbon ~~articles~~ anode blocks.

Claim 29 (previously presented): A carbon baking furnace according to claim 28 wherein the high temperature zone comprises a plurality of heating zones.

Claim 30 (previously presented): A carbon baking furnace according to claim 26 wherein said baking path is substantially linear.

Claim 31 (currently amended): A carbon baking furnace according to claim 26 wherein the refractory lined kiln comprises guides to position the carbon ~~articles~~ anode blocks within the baking path.

Claim 32 (previously presented): A carbon baking furnace according to claim 26 wherein said baking path is substantially vertical.

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Claim 33 (currently amended): A carbon baking furnace according to claim 32 wherein the green carbon ~~articles~~ anode blocks are substantially continuously ~~loaded~~ placed into the kiln in the receiving zone by a conveyor and a hydraulic ram whereby the conveyor positions the green carbon ~~articles~~ anode blocks adjacent to the top of the substantially vertical baking path and the hydraulic ram positions the green carbon ~~articles~~ anode blocks into the top of the baking path.

Claim 34 (currently amended): A carbon baking furnace according to claim 32 wherein the baked carbon ~~articles~~ anodes are substantially continuously discharged from the substantially vertical baking path in the discharge zone by a plurality of hydraulic rams and a conveyor whereby the bottom-most baked carbon ~~article~~ anode is supported by a hydraulic ram and the adjacent baked carbon ~~article~~ anode is engaged and supported by a pair of opposed rams while the bottom-most baked carbon ~~article~~ anode is positioned by the first mentioned hydraulic ram onto the conveyor.

Claim 35 (currently amended): A carbon baking furnace according to claim 32 wherein the packed carbon ~~articles~~ anode blocks are substantially continuously displaced through the baking path under gravity.

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Claim 36 (currently amended): A carbon baking furnace according to claim 26 comprising a hopper for the sacrificial medium, the hopper being fitted with a nozzle for spreading the sacrificial medium over and around each green carbon ~~articles~~anode blocks.

Claim 37 (previously presented): A carbon baking furnace according to claim 26 wherein said sacrificial medium is packing coke having a maximum particle size of less than 15mm.

Claim 38 (currently amended): A carbon baking furnace according to claim 26 comprising scrapers for removing the sacrificial medium from the baked carbon ~~articles~~anodes downstream of the kiln.

Claim 39 (currently amended): A process for baking carbon ~~articles~~anode blocks, said process comprising the steps of:

substantially continuously loading green carbon ~~articles~~anode blocks into a refractory lined kiln, said kiln defining a baking path through which plural carbon anode blocks are displaced from a first end to a second end as they are baked,

packing said green carbon ~~articles~~anode blocks in a sacrificial medium prior to displacing the packed carbon anode blocks through said baking path,

substantially continuously displacing the packed carbon ~~articles~~anode blocks through said baking path to form baked carbon ~~articles~~anodes, and

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substantially continuously discharging the baked carbon ~~articles~~ anode blocks from the kiln at the second end of the baking path.

Claim 40 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the packed carbon ~~articles~~ anode blocks are displaced through the kiln at a uniform rate.

Claim 41 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the packed carbon ~~articles~~ anode blocks are displaced through the kiln at a step-wise rate.

Claim 42 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the refractory lined kiln operates at equilibrium temperatures.

Claim 43 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the green carbon ~~articles~~ anode blocks are heated in a first heating zone of the refractory-lined kiln to remove volatile organic compounds from the ~~articles~~ carbon anode blocks, and wherein the volatile organic compounds are extracted from the kiln.

Claim 44 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein said baking path is substantially linear.

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Claim 45 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the packed carbon ~~articles~~ anode blocks are guided through the baking path by guides in the refractory lined kiln.

Claim 46 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein said baking path is substantially vertical.

Claim 47 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 46 wherein the green carbon ~~articles~~ anode blocks are substantially continuously loaded into the kiln by a conveyor and a hydraulic ram whereby the conveyor positions the green carbon ~~articles~~ anode blocks adjacent to the top of the substantially vertical baking path and the hydraulic ram positions the green carbon ~~articles~~ anode blocks into the top of the baking path.

Claim 48 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 46 wherein the packed carbon ~~articles~~ anode blocks are substantially continuously displaced through the baking path under gravity.

Claim 49 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 46 wherein the rate at which the packed carbon ~~articles~~ anode blocks pass

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down the substantially vertical baking path is controlled by retarding or braking the movement of the lower or lowest baked carbon ~~articles~~ anode.

Claim 50 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 46 wherein the baked carbon ~~articles~~ anodes are substantially continuously discharged from the substantially vertical baking path by supporting the bottom-most baked carbon ~~article~~ anode with a hydraulic ram, engaging and supporting the adjacent baked carbon ~~article~~ anode with a pair of opposed rams, and using the first mentioned hydraulic ram to position the bottom-most baked carbon ~~article~~ anode onto a conveyor.

Claim 51 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the sacrificial medium is stored in a hopper fitted with a nozzle and is spread over and around the green carbon ~~articles~~ anode blocks by means of the nozzle.

Claim 52 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein said sacrificial medium is packing coke having a maximum particle size of less than 15mm.

Claim 53 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 39 wherein the sacrificial medium that has been displaced through the baking

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path with the packed carbon ~~articles~~ anode blocks is separated from the baked carbon ~~articles~~ anodes downstream of the refractory lined kiln.

Claim 54 (currently amended): A process for baking carbon ~~articles~~ anode blocks according to claim 53 wherein the sacrificial medium is separated from the baked carbon ~~articles~~ anodes by means of scrapers.